October 19, 2012

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814

SUBJECT: Comment Letter - Statewide Biological Objectives Policy - CEQA Scoping Comments

Dear Ms. Townsend:

Tri-TAC, the Southern California Alliance of Publicly Owned Treatment Works (SCAP) and the Central Valley Clean Water Association (CVCWA) appreciate the opportunity to provide written comments on the State Water Resources Control Board's (State Water Board's) Statewide Biological Objectives Policy and Program of Implementation for Perennial and Wadeable Streams CEQA Scoping Document (Policy). Tri-TAC is jointly sponsored by the California Water Environment Association, the League of California Cities, and the California Association of Sanitation Agencies. SCAP is a non-profit organization providing regulatory assistance to 86 public agencies that provide essential water and wastewater treatment to nearly nineteen million people in Southern California. CVCWA is a non-profit organization representing more than 50 publicly owned treatment works (POTWs) throughout the Central Valley Region in regulatory matters affecting surface water discharge, land application, and water reuse. Our associations collectively represent public wastewater agencies providing sewer collection, wastewater treatment and water recycling services to millions of Californians. We encourage the State Water Board to proceed carefully on this Policy, as the consequences could have profound impacts on current and future water supply and flood control, energy consumption, climate change, and the ability to provide sanitation, housing, and other services to the public.

Our associations believe the Proposed Policy could significantly affect numerous water quality programs, including NPDES permitting, impaired waters (303(d)) listings, nonpoint source control programs, and development of total maximum daily loads (TMDLs). To that extent, we believe that in the development and evaluation of the Policy, Policy alternatives, and supporting documentation, it is critical that:

- The overall Policy package lead to effective problem solving and real, reasonable protection of beneficial uses.

- The Policy avoids unintended consequences that could be detrimental to beneficial uses.
- The State Water Board thoroughly analyzes the factors required under Water Code Section 13241 and develops a program of implementation in accordance with Water Code Section 13242.
- The State Water Board carefully considers the technical, policy, and legal basis for the Policy.

We believe that implementation of biological objectives on a statewide basis potentially would set up conflicts between the attainment of multiple beneficial uses of water bodies as well as with other practical functions performed by many of our state's waterways, such as flood management and water conveyance. Because vast swaths of streams in urbanized areas have been channelized for decades, it is unrealistic to add new biological objectives, which represent fundamental new interpretations of the designated aquatic life uses (i.e., support for warm water (WARM) or coldwater (COLD) ecosystems), and to expect that they can attain reference conditions. We feel compelled to state at the outset that we disagree with the premise of the CEQA Scoping Document for this Policy that new biological objectives should be implemented with the purpose of prioritizing or driving restoration of perennial wadeable streams in California. (See CEQA Scoping Document, p. 6.) Restoration of channelized or degraded water bodies is possible in some instances, but should be a local choice and should be locally decided. Water body restoration projects are extremely expensive, and in our highly urbanized areas, doing so with continued adequate flood protection is a major challenge. The attainability of the proposed objectives, their effectiveness in resolving biological indications of impairment, and the net effect on other beneficial uses must be considered in the overall process of establishing biological objectives under the Proposed Policy. (See Water Code Sections 13241 and 13242.) With these limitations and competing uses of water bodies in mind, we offer the following and attached comments on the CEQA Scoping Document for this Policy.

First, the CEQA Scoping Document does not consider many reasonable potential alternatives for developing biological objectives. Alternatives that should also be considered include: (1) adoption of a statewide standard for biological monitoring and comparison only; (2) exclusive application of the Policy to protect streams that meet reference conditions through an anti-degradation approach; (3) a phased approach with initial Phase 1 application of the Policy to streams where achievement of a reference condition is a reasonable expectation; (4) development of a range of "reference conditions" that are reasonable and considers "all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible" including land use and future land uses; and (5) an alternative that divides aquatic life uses into subcategories according to various characteristics, and then assigns biological objectives consistent with those uses. This approach might include a subcategory such as "Limited Warm Freshwater Habitat," defined by the Santa Ana Regional Water Quality Control Board to be waters "which support warm water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses and low, shallow dry weather flows which result in extreme temperature, pH, and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in Limited Warm Freshwater Habitat Waters." (Santa Ana Region Basin Plan, Chapter 3, p. 4) Another model that

should be considered is the successful Ohio tiered aquatic life use (TALU) approach. The Ohio TALU program has been widely accepted as being among the best in the nation because objectives/targets were scientifically derived to support specific and defensible aquatic life uses, rather than using the extremely broad aquatic life beneficial uses (i.e., WARM, COLD) in place in California.

Second, a critical component and consideration during CEQA scoping must be to carefully evaluate the myriad of reasonably foreseeable control measures that may be required to meet the established biological objectives and how these control measures may compromise design functions not typically recognized as a "beneficial use". Such uses of perennial wadable streams include flood control and water delivery. For example, many urban streams are channelized for flood control protection. During large storm events, these channels run full and any in-channel mitigation measures required in response to elements in this Policy would reduce their capacity to control these flows, potentially putting hundreds of thousands of people and thousands of acres of public and private property at risk. Likewise, it is reasonably foreseeable that this Policy may restrict the supply of recycled water available in the future, since some recycled water is transported via streams (which may be impacted by the Policy) and some new recycled water projects may be impacted through the process of applying for a permit for a change in point of use, place of use, or purpose of use pursuant to California Water Code §1211. The net effect may be that some recycled water projects may be unable to proceed, or may be smaller, because of the potential for new conditions to be imposed on project proponents.

Third, we believe there are technical constraints and challenges that must be addressed prior to the development of the Policy, and many implementation issues that must be thought through and properly addressed. For instance, the terms "perennial" and "wadeable" need clear definitions, as do terms such as "high quality" (as a modifier of "streams"). Tools for performing accurate, credible causal assessments need to be robust, since assessments of streams using biological assessment tools may indicate poor conditions, but unless there are robust tools for determining the cause(s), dischargers to those streams may be at risk of being held responsible, regardless of their proportional contribution to the problem, as long as there is reason to believe that they may have "contributed" to the problem in some way.

Fourth, the State Water Board should consider a range of implementation measures including variances, a multiple line of evidence approach, a program which allows alternative compliance options besides "end of pipe" solutions for point sources, and a program which would reduce or eliminate chemical or other requirements in biologically healthy streams.

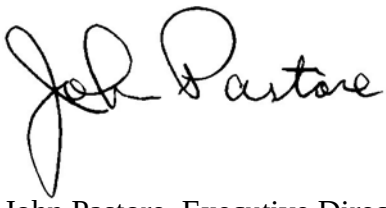
Finally, we strongly recommend that the proposed Policy and implementation plan be evaluated not only for large- and medium-sized communities, but also for small and very small communities who can be significantly impacted by the proposed Policy.

These and other detailed comments are included in Attachment A. Our associations thank the State Water Board for this opportunity to provide input into the development of the Policy. We look forward to working with the State Water Board as it continues to develop statewide

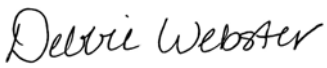
biological objectives. If you have any questions about these comments or require additional information, please contact Ann Heil at (562) 908-4288, extension 2803, or by email at aheil@lacsd.org.

Sincerely,

Jacqueline Kepke, Vice-Chair
Tri-TAC



John Pastore, Executive Director
SCAP



Debbie Webster, Executive Officer
CVCWA

cc: Karen Larson, SWRCB staff

ATTACHMENT A:
DETAILED COMMENTS ON POTENTIAL STATEWIDE BIOLOGICAL OBJECTIVES

I. Technical Concerns

The observed over expected (O/E) and the even more recently developed pMMI endpoint anticipated for inclusion into the Policy have not been widely used in California or the U.S.

Although widely used in Europe and other countries, the O/E endpoint has not been widely incorporated into water quality programs in the U.S. and efforts to develop such an endpoint associated with this Policy represent the first significant attempt to use this endpoint in California. More recently, the Technical Team has been developing an even newer endpoint that represents a hybrid approach that combines an O/E index with a multi-metric index. This approach has had even less usage than the O/E. The proposed Policy would represent the first such large scale use of this metric anywhere in the world. The State Water Board should consider alternatives, as detailed below, that would not establish a full-blown regulatory program with an endpoint that has not been used before.

Reference conditions for some regions have not been adequately established.

The Technical Team working on the scientific elements associated with the Policy has indicated that reference conditions for the Central Valley and South Coast Xeric ecoregions have not been sufficiently characterized due to the low number of appropriate reference locations in these regions. Additionally, the lack of reference locations in other more general locations such as large watersheds in low elevation and low gradient streams have resulted in significant uncertainty in establishing similar expectations for these areas. The Public Scoping Information Document states that the "key to using bioassessments for evaluation of biological integrity is the concept of the reference condition" and that the "reference condition is the desired ecological condition against which test sites are compared". Therefore, it will not be possible make such an evaluation in the Central Valley, South Coast Xeric, and other under-represented regions such as low elevation/low gradient streams. Furthermore, it will be impossible to determine in these regions if the "desired ecological condition" is attained. For this reason, the Central Valley and South Coast Xeric ecoregions as well as streams in low elevation, low gradient areas draining large watersheds should be specifically excluded from this Policy.

The Definition of "perennial" needs to be more thoroughly developed.

The State Board is currently using a "working definition" for the term "perennial" that states, "a stream with the year round presence of flowing surface water during a typical water year." This definition lacks an indication of the minimum distance that flowing water needs to be present before a stream is to be considered perennial. Upstream recruitment of invertebrates has been identified by researchers as a critical mechanism for establishing downstream communities. It is for this reason that tail waters below dams do not exhibit similar biological condition as those further downstream. Likewise, a flowing stream reach fed by resurfacing ground water or some other source where upstream reaches are dry should be expected to have similar, less complex biological community as those observed below dam releases. Additionally, stream reaches that typically contain flowing water but then dry up downstream should also be considered non-perennial. Furthermore, water diversions may result in perennial flows to reaches that are historically non-perennial and historically perennial streams may become non-perennial due to water conservation efforts and water diversions. For these reasons, a temporal component to the perennial/non-perennial definition needs to be established. Since this proposed Policy is intended to apply only to perennial wadeable streams, it is critical that the conditions of a perennial stream be clearly defined

before CEQA documentation is prepared in order to effectively identify all reasonably foreseeable impacts of the Policy.

Meeting a biological objective based on benthic macroinvertebrate populations and even future algal biological condition thresholds will not necessarily result in an over-all healthy biological condition in the vast majority of California's streams.

The Technical Team indicated that a fish community index to evaluate biological condition would be relatively infeasible in California. California has relatively few remaining native fish species and the majority of streams and lakes in the State are dominated by introduced non-native species, many of which provide significant angling recreational benefits. The State Water Board lacks the ability to eradicate the dominant non-native fish species in the State such as largemouth bass, catfish, bluegill, and brown trout. This list only represents a fraction of the non-native fish species creating barriers making restoration of fish communities impossible and any such attempt at doing so would be perceived as extremely unpopular with the recreating public and the Department of Fish and Game. Therefore, development of a native fish index has not been pursued in favor of the benthic macroinvertebrate and algal community indices with the understanding that the fish communities in nearly all of California's streams will always be biologically "poor". For this reason, if the intent of this Policy is to restore the biological condition of California's streams, it will fail in nearly all instances even if invertebrate communities achieve a high level of ecological function. In recognition of this ecological limitation, the State Water Board should more clearly and directly identify the specific intent and goal of this Policy so that a Policy can be drafted that will be likely to achieve those goals.

Available causal assessment tools are not well suited for evaluating systemic/chronic causes of biological impairments, and are expensive and time-consuming.

The Technical Team has concluded that in many areas of California, the cause of low performing biological indicators tends to be long-term systemic factors and not more temporally restricted events. The primary tool available for assessing the cause of biological impairments is USEPA's Causal Analysis/Diagnostic Decision Information System (CADDIS). CADDIS was developed and is best suited to identifying the cause of more rapid changes in biological condition (i.e., fish kills). Although the CADDIS approach and several Technical Team-developed modifications show some promise, significant challenges still exist. Most notably, a causal assessment approach that addresses temporal variability in areas where the cause is suspected to be systemic and chronic needs to be developed that aggregates multiple years of data. According to the Technical Team, current and augmented CADDIS methods are "fairly good at ruling out suspected causes" but not very helpful at reliably "detangling multiple, co-varying stressors to identify a likely candidate cause or causes." This is underscored by the recent effort to apply CADDIS to several case studies around the State. Despite high-level experts and extensive time devoted to the four causal assessments, no causes were conclusively identified.

Even more importantly, it has not been demonstrated that once a cause or causes of the biological impairment has been identified through the causal assessment, attainment of the objective will be likely once the identified cause/causes are eliminated. Such causal assessments are more qualitative and only under extremely rare circumstances (such as short-term fish kills) will they conclusively identify the cause. It is reasonably foreseeable that this could lead to significant efforts and expenditures in attempts to correct a problem with little to no assurances that the desired goals will be achieved. Therefore, until better causal assessment approaches are developed, adoption of a biological objective Policy intended to improve or restore biological condition is not likely to result in any significant environmental improvements.

Finally, the use of CADDIS is very time-consuming and expensive. Given the potential number of waterbodies to which causal assessment will have to be applied, it would not be practical to rely upon this tool.

The Technical Team has not developed a method to identify and correct for expected and documented changes in biological condition associated with natural disturbances.

Natural disturbances such as fire, decreased and increased flows associated with drought and storm events, and even large scale climate changes have been documented or suspected to have extremely large, and in some cases long lasting impacts on biological condition. By using a ten-year indexing period when selecting reference locations, some of these disturbances may have been incorporated to some degree into the setting of reference condition. However, there has been no detailed discussion of how to account for these expected, natural changes in biological condition observed at a test site. Even more subtle natural changes such as those associated with the annual variations in precipitation need to be addressed. Differences in precipitation have also been identified by the Technical Team to be a significant driver of biological condition at reference locations. Precipitation across much of California is best characterized as a multi-year cycle of widely fluctuating annual precipitation rates. For example, in southern California, 61 out of the previous 133 years exhibited annual rainfall rates that differed from the long-term average by over 30%, and a cursory review of precipitation patterns for San Francisco and San Diego revealed a similar pattern. If the majority of the reference locations were repeatedly measured over the ten-year indexing period, this type of natural variability could be assumed to be captured in variance estimates of the reference condition. However, that was not the case and although reference location was sampled across ten years, repeated measurements at the same locations during that time period were rare.

Variation in Measurement Needs to Be Considered.

The large amount of temporal, spatial, and seasonal variability inherent in the current biological assessment tools would indicate that a single bioassessment analysis is not reliable. Even field duplicate samples collected at the same time and same location have been found to vary by as much as 100%. The Technical Team recognized these limitations when establishing the reference pool and utilized biological data collected over a ten year period to adequately incorporate temporal variability into their reference expectations. Establishing current baseline condition at a given site would require at least seven years of sampling and analysis in order to appropriately address observed temporal variability in precipitation.

II. Alternatives That Should Be Considered

An Alternative that Only Relies on Bioassessment Monitoring Should Be Considered.

Because of the uncertainty surrounding the newly proposed hybrid O/E-pMMI endpoint, we recommend that the Policy initially require incorporation of the hybrid O/E–pMMI endpoint into existing biological monitoring programs before establishment of any statewide objectives. This would allow entities performing monitoring to become familiar with the endpoint and whether it appropriately describes California's perennial wadeable streams.

An Alternative to Protect High Quality, High Performing Streams Should Be Considered.

The Informational Document clearly indicates that protecting high quality streams and streams currently exhibiting high biological condition is a major goal of this Policy. These are also the same reaches where attainment/maintaining reference condition may be a reasonable expectation and where there is the least

uncertainty in characterizing reference condition. Furthermore, since impairment in these streams would reflect a change from current condition, the available causal assessment tool (CADDIS) would likely be better suited. Therefore, the State Water Board should consider an alternative that utilizes numeric biological targets only on streams meeting or expected to meet reference conditions while requiring standardized biological monitoring on others. Such an alternative will prevent degradation within our most biologically important streams and most effectively utilize the existing tools regarding establishment of reference condition and causal assessment.

An Alternative that Phases in the Application of Biological Objectives Should Be Evaluated.

Under a phased approach, the initial use of biological objectives would initially be limited to streams in which reference conditions are attained, which represent vulnerable and ecologically important areas. In later phases, the Policy could be better developed using information learned from earlier phases to expand usage to other regions and areas. This will initially restrict use of the objectives and causal assessment tools to areas where there is little disagreement as to their applicability and where successful causal identifications are most likely to be obtained. Subsequent phases to extend applicability to other areas can then be considered and developed as more information on the appropriateness of applying biological objectives to these areas is obtained.

A Tiered Aquatic Life Use Alternative Should Be Considered.

State Water Board staff recognize that reference biological expectations for some perennial and wadeable streams are not reasonable and have proposed an alternative that would establish an intermediate biological threshold lower than that of reference condition ("best attainable") for these streams. This approach functionally "tiers" the biological expectation to some lower level even though the designated aquatic life beneficial use for the stream may remain the same as those in a more pristine or reference state. We believe that a more systematic approach that would ensure that beneficial uses and water quality objectives are appropriately matched is to create additional subcategories of the aquatic life use and apply them as appropriate within each region, similar to an approach that has been successfully incorporated into Ohio's regulatory program that uses "tiered aquatic life uses" (TALU). In Ohio, the biological expectation has been adjusted up or down based on what is minimally necessary to support the tiered beneficial aquatic life use, recognizing that not all streams and channels should be expected to support the same beneficial use. Another approach would be to include a subcategory such as "Limited Warm Freshwater Habitat," defined by the Santa Ana Regional Water Quality Control Board to be waters "which support warm water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses and low, shallow dry weather flows which result in extreme temperature, pH, and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in Limited Warm Freshwater Habitat Waters." (Santa Ana Region Basin Plan, Chapter 3, p. 4) State Water Board staff are proposing to tier/reduce the biological expectation knowing that meeting such an expectation will still not support the highest level of the desired beneficial use (or meet the narrative biological objective) because the beneficial use will remain unchanged. Therefore, the "best attainable" threshold becomes an arbitrary target that will not result in attainment of the biological objective and may or may not be necessary to support the desired aquatic life beneficial use. For these reasons, it is imperative that the State Water Board evaluate an alternative that includes modifying both beneficial uses and water quality objectives to match those uses.

Alternatives considered in the Informational Document need to be carefully evaluated.

In addition to the "No Action" alternative, State Water Board staff is only considering two other alternatives. Alternative 2 would establish reference condition-defined biological expectations for high quality streams and require no further degradation in degraded/modified streams. Considering the limitations and uncertainties of the available tools described elsewhere in this comment letter, this alternative may be appropriate for streams meeting reference conditions, so long as reference conditions are consistent with Water Code Section 13241, but is likely to result in costly, unproven, and unnecessary mitigation controls being imposed in the lower performing streams. Such an "anti-degradation" approach would potentially result in the need for advanced treatment controls for all new discharges as well as extensive BMPs for any new development, even for those discharges into highly modified channels with no reasonable expectation of ever achieving reference condition. The reasonably foreseeable societal costs and environmental impacts associated with complying with this Policy under these circumstances should be carefully evaluated. . In addition to the extreme impacts associated with flood control and recycled water restrictions detailed earlier, higher levels of wastewater treatment such as reverse osmosis treatment will require the use of an estimated additional 27,000 MWh of energy for a 20 MGD wastewater treatment facility resulting in the annual atmospheric release of over 17,000 tons of CO_2, 7 tons of NOx, and over 200 pounds of SO_2.

Alternative 3 would establish expectations of "best attainable" for low scoring streams by setting thresholds based on what is "achievable" in similar streams instead of using reference condition expectations. However, the vast range of modifications and other "uncontrollable" stressors found in streams in California would require the development of hundreds of different expectation thresholds or worse, force all of these different modified streams to meet one of only several different expectation thresholds. Any such targets for habitat restoration should not be based on an arbitrary "best attainable" biological condition score but on some other metric (e.g., amount of impervious surface removed, acres of corridor habitat replanted with native vegetation, etc.) through a completely different policy approach. Only through a separate site-specific restoration effort could the appropriate societal costs such as increased risks of flooding, potential reductions in available water supplies, or the displacement of housing, schools, infrastructure, etc. be effectively evaluated and assessed to achieve the desired goal. Additionally, State Water Board staff contends that such an approach "reduces the expenditures of time and resources that are necessary to evaluate aquatic life uses on a case by case basis". However, it disproportionally forces the public to assume all of the expenditures of time and resources instead. And similar to Alternative 2, these reasonably foreseeable costs and impacts are extensive.

Both of these alternatives recognize that achieving reference condition is not reasonable at all locations and therefore will result in the setting of numeric biological expectations below "the desired ecological condition" of reference condition. Therefore, even if these sub-reference condition thresholds are achieved, the stream or reach would still not meet the narrative biological objective. The State Water Board needs to carefully evaluate the efficacy and costs associated with a Policy that will likely require significant mitigation and restoration measures as well as potential water and wastewater treatment upgrades in order to achieve some possible but uncertain incremental improvement that still falls below the objectives.

III. Environmental Impacts That Should Be Evaluated in the CEQA Analysis

Flood control and the associated protection of life and property and the need for housing need to be carefully evaluated in the CEQA process.

State Water Board staff and other researchers correctly assert that poor habitat condition is the likely cause of many if not most of the biological impairments in California, particularly in areas with significant urban and/or agricultural development. A stated "need for the Policy" is to provide mechanisms for restoration of such areas[1]. In southern California and elsewhere in the State, many perennial and wadeable streams are channelized. Such channel modifications greatly impact reasonable biological expectations. Setting reference expectations based on minimally impacted land use conditions for these modified habitats is generally accepted as being unreasonable but setting some alternative intermediate expectation other than reference condition would also be unsupportable biologically and functionally arbitrary, unless beneficial uses are also modified to reflect actual habitat conditions.

As part of the CEQA process, it is important that the State Water Board carefully consider the reason that these streams have been so heavily modified. For example, in the Los Angeles Region, the Los Angeles River historically meandered year to year between ocean outlets on Santa Monica Bay (Ballona Creek) and San Pedro Bay. It was also common for the San Gabriel River during high flow periods to actually join with the Los Angeles River. However, after disastrous floods in 1914, 1934, and 1938 that killed more than 100 residents and destroyed 5,600 homes, these rivers were channelized and headwaters dammed to protect people and property. Since that time, significant stretches of land along these rivers have been developed and currently support safe housing and industry to hundreds of thousands of people in the region. Even now, these channels run full during large storm events while still protecting the community from flooding. Reasonably foreseeable control measures to improve biological condition in these channels include potential addition of cobble substrate, removal of armoring, planting of vegetation. However, such measures will also decrease the capacity and capability of these structures to provide adequate flood control protection. Therefore, these controls could be expected to have drastic and possibly tragic impacts on housing, roads, industry, recreation, other vital infrastructure and the economies that rely on these services due to the expected decrease in flood control capacity. Therefore, the State Water Board should carefully evaluate the setting of biological objectives that may result in the need to alter flood control capacity of modified channels that could result in potential loss of life and property.

Adoption of statewide biological objectives could have profound impacts on current and future water supply.

Statewide biological objectives could have the unintended but reasonably foreseeable consequence of limiting growth and expansion of recycled water projects through restrictions on the ability to obtain necessary permits for new or expanded projects or through the "artificial" establishment of a perennial stream subject to the provisions in the Policy where they did not previously exist. Clearly, the potential impacts associated with decreasing and increasing flows on macroinvertebrates have the potential to be significant but have been largely unstudied. Water agencies are currently looking into new and potentially large groundwater recharge projects in a continuing effort to provide safe and reliable water for the State and many POTWs are looking to expand recycled water uses in and near their communities. Such projects

[1] Proposed Statewide Policy for Biological Objectives in Perennial Wadeable Streams (Informational Document), September 2012, Page 6.

can be expected to reduce recycled water discharges into some stream reaches while potentially increasing discharges in others due to the use of existing stream channels to transfer water to recharge and recycling projects. Uncertainty associated with potential macroinvertebrate impacts due to such water movements could lead to delays or even abandonment of these vital projects.

To compound these issues, current and future water conservation efforts have and should continue to result in over-all decreases in POTW discharges, which will reduce flow in effluent-dominated streams. Uncertainty over potential impacts on the macroinvertebrate community, particularly in areas with extensive stream channel modifications already in place, should not impede water conservation efforts.

Impacts to water supply and water delivery will have significant and far ranging consequences through the state. Limitations and/or restrictions on water recycling and recycled water movement as a result of biological objectives would place increased demands on current water supplies, which are already under significant stress due to the dependence in much of the State on imported water supplies and the growing impacts of climate change. This could have drastic effects on California's $36.2 billion a year agricultural industry as the cost of water increases and more limited and less reliably available water resources are diverted away from farming. This will result in increased food prices in California and across the nation as California provides over one half of the fruit and vegetable crops in the U.S. Such restrictions will also limit housing, industrial, and economic growth. Increased water recycling will allow for more sustainable residential and industrial development but restrictions in response to uncertainty in meeting biological objectives will limit these opportunities.

Potential impacts to native and endangered fish and other species needs to carefully evaluated as part of the CEQA process.

An expected consequence of failing the objectives of this Policy will be requirements to conduct restoration to maximize benthic invertebrate biological communities through a variety of mechanisms. An unintended but reasonably foreseeable consequence of such an action may include negative impacts to other species. Mitigation measures to maximize benthic invertebrate populations may have the opposite impact on other species utilizing the same stream and riparian resource. For example, the upper Santa Clara River is one of those extremely rare streams in California that support a robust population native and endangered fish species. However, this same reach typically scores poorly on currently available benthic macroinvertebrate indices even though the aquatic and riparian habitat conditions actually support healthy populations of threatened or endangered Santa Ana Suckers, Unarmored Sticklebacks and Arroyo Chubs (not mention a wide variety of endangered birds) with very few non-native fishes. Mitigation to "improve" invertebrate populations will represent a change from current conditions. However, current conditions are supporting this very rare and unique biological population and changes to this current condition may result in unintended but predictable degradation of this condition. The State Water Board will need to carefully evaluate the reasonably foreseeable impact this biological objective Policy may have on native and endangered species currently being supported in a riverine systems exhibiting non-reference invertebrate populations.

Potential impacts associated with introduction of non-native invasive species needs to be evaluated in the CEQA process.

Foreseeable impacts related to the introduction of harmful invasive species due to policy-required monitoring and mitigation measures must carefully considered as a part of the CEQA process. Biological monitoring requires direct human and equipment contact with aquatic communities in a stream. This activity can and has been implicated as a primary vector for spreading non-native and invasive species and such activity will be expected to increase as result of the adoption of this Policy. The Santa Monica

Bay Restoration Commission concluded that "activities such as resource monitoring can be, and in the case of the New Zealand mud snail in the Malibu Creek watershed, probably is, a pathway for the unintentional spread of both aquatic and terrestrial invasive species". Although procedures have been put in place after the discovery of New Zealand mud snails in southern California to prevent further transmission of this invasive species, the same procedures may not be sufficient to address future invasive species relocations. Additionally, the transition of non-perennial flows to perennial flows, common in the Santa Monica Mountains, will also exacerbate the expansion of exotic and invasive species. Potential biological mitigation that may require maintaining or increasing flow to support aquatic benthic macroinvertebrates and the potential impacts on exotic and invasive species expansion must be considered.

IV. Implementation Issues

Additional implementation alternatives should be considered.

The Informational Document (p. 8) only includes a very small range of implementation and surveillance measures, specifically implementing the Policy using the State Water Board's Compliance Schedule Policy (with possible adjustments) and incorporating the surveillance component into SWAMP monitoring as well as other Water Board program monitoring and reporting requirements (e.g., receiving water monitoring required in NPDES stormwater permits). The State Water Board should consider a larger range of implementation measures and surveillance options than described in the Informational Document. Alternatives should include, but are not limited to:

- How waterbodies could be segmented and categorized, including consideration of the spatial extent under which biological condition will be assessed.
- How different sources will be identified and the anticipated actions and requirements for each source group.
- The manner in which biological objectives might be used to establish effluent limits for POTWs (including whether limits are expressed as concentration or mass limits and the appropriate averaging period).
- The use of TMDL load and waste load allocations or watershed based permitting to achieve the desired biological objective or target.
- Seasonal limits
- Dilution credits and mixing zones
- Flow basis (other than 7Q10) for implementation
- Other options as an alternative to end-of-pipe application biological objectives as effluent limits. Alternative compliance options (similar to offsets) should be considered as a tool to promote coordinated efforts and maximum environmental and social benefits over end of pipe requirements.
- Whether site specific objectives can be implemented.
- Both short and long term variances. Variances may be necessary for temporary disruptions to streambeds for needed construction and remedial efforts or natural causes such as fires. Longer term variances may be a useful tool to promote prioritization of water quality goals and multi-stakeholder or larger restoration efforts.
- Reduction or elimination of chemical limits and analysis for aquatic life purposes when a stream is biologically healthy.

In addition to the above comments, we recommend the following alternatives be considered in the development of the Policy as it relates to monitoring:

- Watershed based monitoring (Regional Monitoring Programs)
- Prioritization of monitoring efforts and locations
- Reductions in monitoring over time
- Substitution of chemical monitoring for biological monitoring (or vice-versa)
  Alternative monitoring for small communities

Small Community Impacts

Because this Policy is likely to impact POTWs, we strongly recommend that the State Water Board evaluate the impacts of these and potentially other implementation measures on small and very small communities, and develop feasible compliance alternatives for them. Additionally, where site specific work is needed to refine aquatic life uses and/or biological objectives, we would recommend the State and/or Regional Water Boards take the lead in these studies. Small communities typically do not have the financial or scientific resources needed to pursuing site specific studies.

VI. Section 13241 Analysis

A Thorough Economic Analysis Must Be Conducted.

The State Water Board is to regulate to attain the highest water quality that is "reasonable." (Water Code §13000.) The Water Boards are under "an affirmative duty to consider economics when adopting water quality objectives in water quality control plans." (Memorandum to Regional Water Board Executive Officers from William R. Attwater, Chief Counsel, January 4, 1994 at p.1.) To fulfill this duty, the State Water Board must assess the costs of the Proposed Policy, including a review of available information to determine:

- Whether the objective is currently being attained.
- What methods are available to achieve compliance with the objective, if it is not currently being achieved.
- The costs of those methods. (*Ibid*.)